# UNITED STATES PATENT OFFICE.

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## TRACTION-ENGINE.

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*To all whom it may concern:*

Be it known that I, BENJAMIN HOLT, citizen of the United States, residing at Stockton, in the county of San Joaquin and State of California, have invented new and useful Improvements in Traction-Engines, of which the following is a specification.

My invention relates to an improvement in vehicles, and especially of the traction engine class; and includes endless traveling platform supports upon which the engine is carried.

It consists in a combination of parts, and in details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of my apparatus. Fig. 2 is a plan. Fig. 3 is a perspective view of parts of the sprocket wheel and chain. Fig. 4 is a view of a sleeve 10. Fig. 5 is a view of a connecting bolt. Fig. 6 is a transverse section of link connections. Figs. 7, 8 and 9 are transverse sections of bearing-wheels or rollers and supports. Figs. 10, 11, 12, 13, 14 are enlarged views of chain links and connections. Figs. 15 and 16 are diagrammatic views showing contact position of chains with the wheel peripheries. Fig. 17 is a transverse section showing two bearers upon one shoe. Fig. 18 is a perspective view of side plates and rivet pins. Fig. 19 shows the wheels overlapping the chain-bearing wheels.

It is the object of my invention to provide such improvements in that class of vehicles known as "traction engines" as will enable the engine to transmit its power so as to most efficiently propel it over the surface upon which it travels; and in the construction of endless traveling belts upon which the weight of the machine is supported, and through which power is transmitted to propel it.

I have herein shown my invention as especially applied to a traction engine, the frame A of which is here shown as made of transversely disposed channel, angle, or like bars. Upon this frame is mounted a suitable motor B from which power is transmitted through intermediate gearing C to revolve the sprocket-wheels 2. At the opposite end of the frame and upon each side thereof are similar wheels 3. Between these sprocket-wheels extend the endless traveling belts which I have termed "platforms," and which serve to support the weight of the machine upon any surface over which it may be called to travel. These platforms are composed of links overlapping and pivoted together, and having such a length with relation to the distance between the sprocket-wheels and the number of teeth upon the wheels that their connecting bolts may engage the teeth of the sprocket-wheels in such a manner as to be propelled and carried thereby.

In certain classes of machines where unusual weight is to be carried there may be two lines of sprocket-wheels for each platform, and two lines of links forming endless chains to pass around these sprockets, Fig. 17. Transverse shoes 5 are secured to these chain links, and provide a sufficiently broad support to prevent the apparatus carried thereon from sinking into the ground or becoming stalled. Where the machines are of smaller and lighter construction, a single line of sprockets with a single line of chain may be employed; the links being constructed in a similar manner in each case.

Bearings upon each side of the machine are provided by longitudinal plates 6 extending between the transverse beams of the frame, carrying upon their ends the journal-boxes of the sprocket-wheels 2 and 3, and carrying near their lower edges the supports for flanged wheels 7 which travel upon the inner edges or surface of the chain links where they pass between the peripheries of the sprocket-wheels. Or the flanged wheels may revolve on pins or gudgeons secured to or passing through these plates. A convenient form of this arrangement is a gudgeon flattened on one end *a* and having on the other end a round head *b* with a hole on its upper edge to receive lubricant which thence runs along a groove upon the upper side of the gudgeon 20. This gudgeon passes through a round hole in one plate (6) and its flattened end projects through a correspondingly-shaped hole in the other plate. It is thus prevented from turning. A bolt *c* passes through the gudgeon, (the metal around the above mentioned oil hole also serving to prevent the bolt head from turning,) and through a washer *d* shaped to receive the flattened end of the gudgeon. This arrangement secures the gudgeon in the plates and at the same time prevents any undue pressure of the plates upon the ends of the hubs of the